CHAPTER 1

INTRODUCTION

1-1. Purpose

The purpose of this manual is to familiarize qualified personnel with problem areas of supplying electrical power to automated data processing (ADP) systems. Special emphasis is placed on areas most often overlooked or misunderstood by experienced designers and personnel responsible for maintaining an outflow of quality data from an ADP installation. ADP systems are highly reliable, but will on occasion malfunction and because of their complexity will require the services of highly skilled personnel to correct and maintain the systems. This manual covers many inter-related aspects of an ADP installation in regard to the electrical and life-safety systems. This manual will review the systems found in the typical data center, and is not intended to provide the detailed level of understanding where arithmetic and other more advanced mathematics are required to describe or explain a given function.

1-2. Scope

This manual is limited in scope in that it in no way is intended to be a course in the design of ADP systems or related components. The engineering skills needed to design ADP systems are abilities acquired through the process of formal education and actual field experience. The area of field experience will be stressed in this manual and the subjects focused upon will be those areas that are frequently the least understood. This manual will be useful to the power-oriented engineer with limited commercial building experience and personnel responsible for the electrical design, inspection, installation, and maintenance supervision of electrical power distribution systems supplying ADP systems. This manual is not intended as a replacement for the engineering text furnished as part of ADP system components, but rather, should be used to supplement and better evaluate established design practices. While the fundamental objective of any ADP system is the processing of input data, the output data can be greatly altered and influenced by the quality of power supplying the ADP system. In spite of the wide variation of systems in use, all ADP systems respond adversely in some degree to the quality of the basic power sources available. The manual addresses the following primary elements required for a safe and reliable ADP system.

a. Quality of the electrical power system for both efficiency and reliability

b. Safe electrical installations

c. Proper electrical grounding

d. Standardization of ADP systems at various sites

1-3. References

Design, installation, and maintenance requirements should follow the latest version of applicable codes and standards from recognized industry and commercial groups and committees. Appendix A contains a complete listing of references used in this manual.